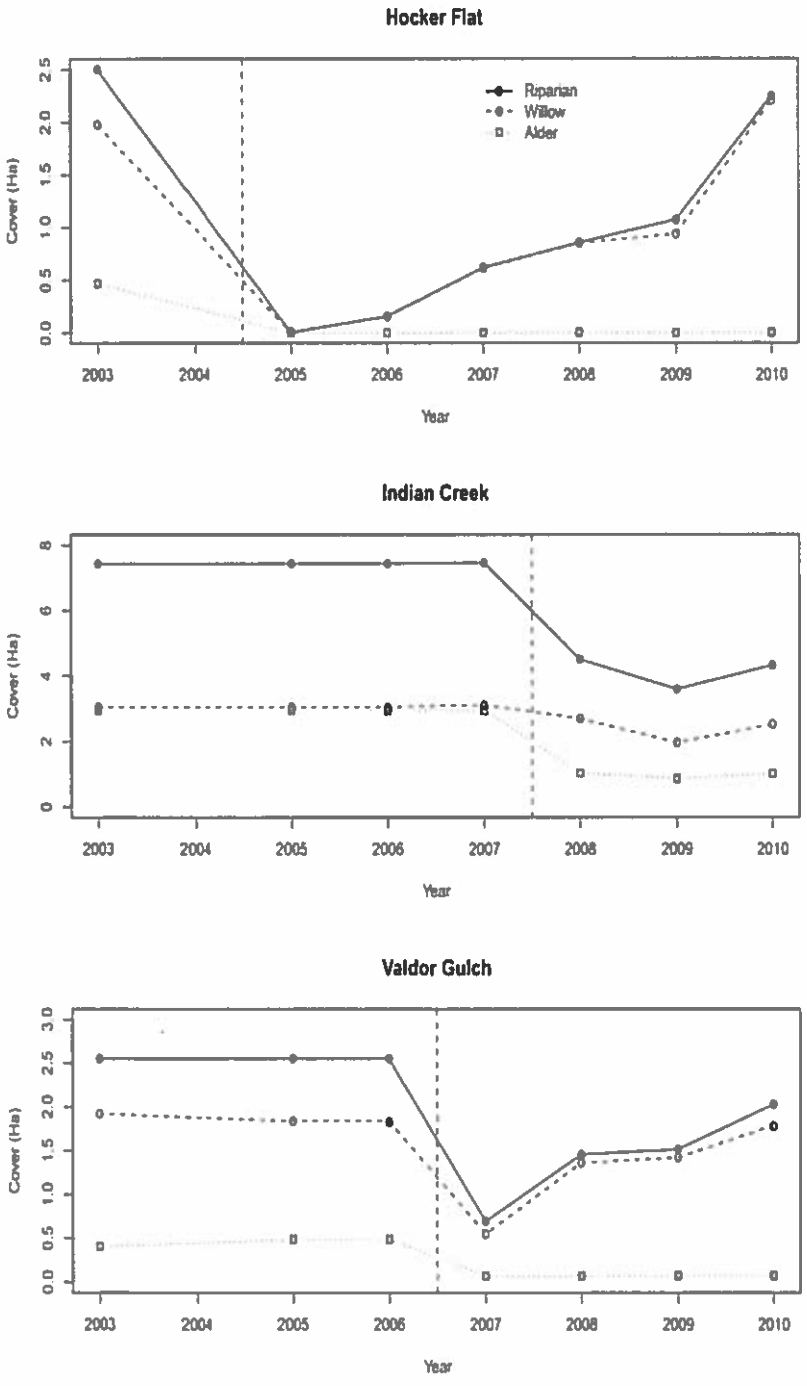
Summary

Ten years into the Trinity River Restoration Program we see that channel rehabilitation activities as implemented, including the removal of riparian berms and the construction of river channels and floodplains, did not lead to significant degradation of the riparian habitat, as indicated by increasing or stable populations of the five focal riparian bird species at the program area scale.

Riparian habitat at select restoration sites is showing increasing ecological value over time. The Song Sparrow, our focal species that uses early successional habitat, returned to pre-restoration levels of abundance within five years of channel rehabilitation activities at the Hocker Flat site (Ausprey et al. 2012), where the extent of riparian vegetation also recovered during the same time period (Figure 2). Riparian vegetation is still recovering at other sites, such as Indian Creek and Valdor Gulch, and ongoing monitoring will assess whether the ecological value of riparian habitat at restoration sites continues to increase until it can support healthy populations of the full suite of focal species.



There are indications that channel rehabilitation activities have led to negative impacts on some focal species at the site scale immediately following channel rehabilitation (Ausprey et al. 2012, Alexander et al. In Review). This is not surprising due to the restoration-associated reduction in vegetation, and these impacts are not expected to persist if the riparian habitat is successfully replaced. That said, site-scale negative impacts can be minimized by retaining both substantial habitat at the program area scale and large patches of habitat adjacent to restoration sites (Gardali and Holmes 2011, Young and Burnett 2012).

The diverse habitat-associations we detected for the focal species lend support to the Trinity River Restoration Program's plan to create diverse and structurally and spatially complex stands of riparian habitat. Through adaptive management the Trinity River Restoration Program can use the resulting information about important habitat characteristics to better ensure functional riparian habitats are retained across the landscape and restored at project sites.

Figure 2. Recovery of riparian vegetation at three restoration sites. Construction year is indicated with dashed line. (Figure from Ausprey et al. 2012.)

The Focal Birds

Five bird species – one resident and four migrants – were selected as riparian focal species for the Trinity River Restoration Program. In combination, these species represent key structural components of a riparian ecosystem capable of supporting numerous other species.

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SONG SPARROW (resident)

This heavily-streaked russet, gray, and white bird is perhaps the most familiar sparrow in the United States. They are also our most common focal species. Song Sparrows keep relatively low to the ground as they utilize grasses and shrubs for nesting and foraging. They feed on seeds, berries, and a variety of invertebrates. As habitat generalists, Song Sparrows will inhabit numerous habitats containing **low, dense thickets** near wet or marshy areas. They are our first focal species expected to inhabit restored riparian and our first indication that young habitat is on a successful trajectory.

BLACK-HEADED GROSBEAK (migrant)

A large bill combined with a black, white, and cinnamon pattern helps identify males of this species. Black-headed Grosbeaks are often most abundant in riparian zones, young mixed conifer and hardwood forests, and at the interface between these two habitat types. They conceal their nests in the midstory and feed mainly on insects, seeds, and berries. On the Trinity, grosbeak abundance in the riparian zone is associated with **semi-open canopy, moderate shrub cover, and vertical stratification of vegetation layers, with a deciduous component.** These birds indicate the presence of young forest stands.

YELLOW-BREASTED CHAT (migrant)

White "spectacles" adorn the grayish head of this vocal bird with a bright yellow chest. Yellow-breasted Chats nest in the understory, often fewer than five feet off the ground. Their diet includes both insects and berries. This focal species prefers the **edges of large, dense thickets** in riparian or floodplain areas, often where there is an **open canopy overstory**. Yellow-breasted Chats indicate restored riparian areas where significant stands of shrub vegetation have established and canopy vegetation is present.

YELLOW WARBLER (migrant)

This bird with rich yellow plumage sports a prominent black eye. Yellow Warblers nest in midstory vegetation, typically between 1 and 14 feet off the ground. They feed almost exclusively on insects. Yellow Warblers are indicators of wet areas and **riparian thickets and woodlands**, particularly those dominated by willows and cottonwoods. Yellow Warblers, like Yellow-breasted Chats, indicate restored riparian areas with dense shrub vegetation and a canopy layer present.

TREE SWALLOW (migrant)

Iridescent blue-green above and snow-white below, the Tree Swallow is often seen in flight. Tree Swallows require **open areas** for foraging, preferably near water. The bulk of their diet is formed from insects taken on the wing, but berries and seeds may be eaten too. This focal species also indicates the presence of **large trees or standing dead trees (i.e., snags)**—features of mature forests—where they place their grass-lined nests in the absence of nest boxes.

(Sources: Ehrlich et al. 1998, Marshall et al. 2003, RHJV 2004)